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| **Teacher Contact Information** | | **Instructional Philosophy** | | |
| Name: Sheila Raja  Email:sraja@tfd215.org  Phone: 708.585.1086  <https://s-raja.wikispaces.com> | | Students learn, understand, and retain concepts best when they actively participate. Because this is my fundamental belief about learning, I encourage students to be actively involved in all aspects of their learning. Students spend time constructing knowledge. Sometimes the new knowledge is clarifying and applying concepts and ideas they already know; other times, it is creating new knowledge. These activities require students to be reflective, critical thinkers and problem solvers. | | |
| **Course Description** | | **Course Objectives** | | |
| This course emphasizes algebraic expressions and forms, especially linear and quadratic forms, powers and roots, and functions based on these concepts. Students study logarithmic, trigonometric, polynomial and other special functions both for their abstract properties ands as tools for modeling real-world situations. A graphing calculator is required for this course. | | * To develop critical thinking skills * To develop communication skills * To develop cooperation/collaboration skills * To develop information processing skills * To develop creative thinking skills | | |
| **Common Core Learning Standards** | | | | |
| This course will focus on the following areas of the Common Core State Standards in Mathematics: **Number and Quantity, Algebra, Functions, Modeling, Geometry,** and **Statistics and Probability**.   * The Mathematical Standards for Practice will guide the instructional activities used in this class:  [**Make sense of problems and persevere in solving them**](http://www.insidemathematics.org/index.php/standard-1), [**Reason abstractly and quantitatively**](http://www.insidemathematics.org/index.php/standard-2),  [**Construct viable arguments and critique the reasoning of others**](http://www.insidemathematics.org/index.php/standard-3),  [**Model with mathematics**](http://www.insidemathematics.org/index.php/standard-4), [**Use appropriate tools strategically**](http://www.insidemathematics.org/index.php/standard-5), [**Attend to precision**](http://www.insidemathematics.org/index.php/standard-6), [**Look for and make use of structure**](http://www.insidemathematics.org/index.php/standard-7), [and  **Look for and express regularity in repeated reasoning**](http://www.insidemathematics.org/index.php/standard-8)**.**   More information can be found at http://www.corestandards.org/the-standards/mathematics/introduction/standards-for-mathematical-practice/ | | | | |
| **Major Course Unit /Topics** | | | | |
| **Unit 1: EQUATIONS AND INEQUALITIES\***   * Real Numbers and Number Operations * Algebraic Expressions and Models * Solving Linear Equations * Rewriting Equations and Formulas * Problem Solving * Solving Linear Inequalities * Solving Absolute Value Equations and Inequalities | | | **Unit 3**: **MATRICES AND SYSTEMS**   * Matrix Operations * Multiplying Matrices * Determinants * Solving Linear Systems by Graphing\* * Solving Linear Systems Algebraically * Solving Linear Systems using Matrices | |
| **Unit 2**: **LINEAR EQUATIONS AND FUNCTIONS\***   * Functions and Their Graphs * Slope and Rate of Change * Quick Graphs of Linear Equations * Writing Equations of Lines * Correlations and Best-Fitting Lines * Absolute Value Functions | | | **Unit 4: Quadratic Functions**   * Graphing Quadratic Functions * Solving Quadratic Functions * Complex Numbers * Quadratic Inequalities * Modeling with Quadratic Functions | |
| **Unit 5**: **Introduction to Trigonometry**   * Right Triangle Trigonometry\* * Law of Sines * Law of Cosines | | | **Unit 8: Powers, Roots, and Radicals**   * Rational Exponents and *n*th Roots * Properties of Rational Exponents * Graphing Root Functions * Solving Radical Equations | |
| **Unit 6: PolynomiaL Functions**   * Properties of Exponents * Evaluating and Graphing * Operations with Polynomials * Factoring and Solving * Analyzing Graphs | | | **Unit 9: Exponential and Logarithmic Functions**   * Exponential Growth and Decay * The Number *e* * Logarithmic Functions * Properties of Logarithms * Solving Exponential and Log Equations * Modeling with Exponential & Power Functions | |
| **Unit 7**: **Introduction to Probability and StatisticS**   * Statistics and Statistical Graphs * Fundamental Counting Principal * Permutations * Probability | | | **Unit 10: PSAE Prep** (Embedded throughout)   * ACT prep * WorkKeys Applied Mathematics Prep * Test Taking strategies | |
| **\*Considered Pre-Algebra and Algebra I Topics** | | | | |
| **Assessments** | | | | |
| *Assignment* | *Unit* | | | *Evaluation* |
| * Practice problems per objective * Team Activities * Warm-Ups | * Various Individual/Team Projects * Homework Quizzes * Quizzes | | | * Unit Assessments * Mid-Term Exams * Semester Exam |
| **Evaluation Structure** | | | | |
| * Assessments 40% * Quizzes 30% * Homework 15% * Classwork/Projects 15% | | | | |
| **District 215 Grading Scale** | | **Materials/Supplies** | | |
| 100-90 A  89-80 B  79-70 C  69-60 D  59- & Below F | | * Textbook * Notebook/Binder * **Graphing Calculator** * Pencil * Paper | | |

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| **Parent/Guardian Signature** | **Student Signature** |
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| Email: | Email: |